

**WHAT IS CLAIMED IS:**

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2           1.       A method of manipulating a disc tissue of an intervertebral disc, the disc  
3       having a nucleus pulposus, an annulus fibrosus, and an inner wall of the annulus fibrosus, the  
4       method comprising:

5               providing a catheter having a radiofrequency electrode at a distal region of the  
6       catheter and a proximal region for externally guiding the distal region of the catheter within  
7       an intervertebral disc;

8               positioning the electrode at the inner wall of the annulus fibrosus by applying a  
9       sufficient force to advance the catheter through the nucleus pulposus to the inner wall of the  
10      annulus fibrosus, which force is insufficient to puncture the annulus fibrosus; and

11              delivering energy to the disc tissue using the electrode.

1           2.       The method of claim 1, wherein the catheter defines a lumen.

1           3.       The method of claim 1, wherein the step of providing a catheter is followed by  
2       the steps of:

3               providing an introducer with a proximal end and a distal end and having an introducer  
4       lumen with a distal opening at a terminus of the introducer;

5               inserting the introducer into the disc so that the proximal end of the introducer is  
6       external to the body and the distal opening of the introducer lumen is internal to the body;  
7       and

8               slidably inserting the catheter into the introducer.

1           4.       The method of claim 3, wherein the distal end of the introducer is internal to  
2       the nucleus pulposus.

1           5.       The method of claim 3, wherein the distal end of the introducer is adjacent to  
2       an opening in the annulus fibrosus communicating with the nucleus pulposus.

6. A method of manipulating a disc tissue at a selected location of the intervertebral disc, the disc having a nucleus pulposus, an annulus fibrosus, and an inner wall of the annulus fibrosus, the method comprising:

providing a catheter having a radiofrequency electrode at a distal region of the catheter and a proximal region for externally guiding the distal region of the catheter within an intervertebral disc;

positioning the electrode at the selected location of the disc by applying a sufficient force to advance at least a portion of the distal region of the catheter through the nucleus pulposus beyond a central region of the nucleus pulposus, which force is insufficient to puncture the annulus fibrosus; and

removing material at the selected location of the disc using the electrode.

7. A method of manipulating a disc tissue of an intervertebral disc, the disc having a nucleus pulposus, an annulus fibrosus, and an inner wall of the annulus fibrosus, the method comprising:

providing a catheter having a radiofrequency electrode at a distal region of the catheter and a proximal region for externally guiding the distal region of the catheter within an intervertebral disc;

positioning the electrode at a location selected from the group consisting of posterior medial inner, posterior lateral, anterior lateral and anterior medial wall of the annulus fibrosus or combinations thereof by applying a sufficient force to advance at least a portion of the distal region of the catheter through the nucleus pulposus beyond a central region of the nucleus pulposus, which force is insufficient to puncture the annulus fibrosus; and

delivering energy to the disc tissue using the electrode at the selected location.

8. A method of manipulating a disc tissue of an intervertebral disc, the disc having a nucleus pulposus, an annular fibrosus, and an inner wall of the annulus fibrosus, the method comprising:

providing a catheter having a radiofrequency electrode at a distal region of the catheter and a proximal region for externally guiding the distal region of the catheter within an intervertebral disc;

positioning the electrode at a first selected location of the disc by applying a sufficient force to advance at least a portion of the distal region of the catheter through the nucleus pulposus beyond a central region of the nucleus pulposus, which force is insufficient to puncture the annulus fibrosus;

delivering energy to the disc tissue at the first selected location of the disc using the electrode;

positioning the electrode at a second selected location; and

delivering energy to the disc tissue at the second selected location of the disc using the electrode.

9. A method of manipulating a disc tissue at a selected location of an intervertebral disc, the disc having a nucleus pulposus, an annulus fibrosus, and an inner wall of the annulus fibrosus, the method comprising:

providing a catheter having a radiofrequency electrode at a distal region of the catheter and a proximal region for externally guiding the distal region of the catheter within an intervertebral disc;

positioning the electrode at the selected location of the disc by twisting the proximal region of the catheter and applying a sufficient force to advance at least a portion of the distal region of the catheter through the nucleus pulposus beyond a central region of the nucleus pulposus, which force is insufficient to puncture the annulus fibrosus; and

delivering energy to the disc tissue at the selected location of the disc using the electrode.

10. A method comprising:

introducing an intervertebral disc apparatus within an intervertebral disc such that a radiofrequency electrode incorporated into the apparatus at a distal region of the apparatus is advanced beyond a central region of a nucleus pulposus of the disc to a selected location; and

delivering energy from the electrode positioned at the selected location such that no vaporization of intervertebral disc tissue occurs when energy is delivered.

11. A method comprising:

2           introducing an intervertebral disc apparatus within an intervertebral disc such that a  
3   radiofrequency electrode incorporated into the apparatus at a distal region of the apparatus is  
4   advanced beyond a central region of a nucleus pulposus of the disc to a selected location; and  
5           delivering energy from the electrode positioned at the selected location such that no  
6   material other than water is removed at the selected location of the intervertebral disc when  
7   energy is delivered.

1           12.     A method comprising:

2           introducing an intervertebral disc apparatus within an intervertebral disc such that a  
3   radiofrequency electrode incorporated into the apparatus at a distal region of the apparatus is  
4   advanced beyond a central region of a nucleus pulposus of the disc to a selected location; and  
5           delivering energy from the electrode positioned at the selected location such that no  
6   destructive lesion is formed on a disc at the selected location of the intervertebral disc when  
7   energy is delivered.

1           13.     A method comprising:

2           providing a catheter having a radiofrequency electrode at a distal region of the  
3   catheter;  
4           advancing the electrode beyond a central region of a nucleus pulposus of an  
5   intervertebral disc to a selected location; and  
6           delivering energy from the electrode positioned at the selected location.

1           14.     The method of claim 13, wherein the electrode is positioned adjacent a portion  
2   of an inner wall of the disc which forms a region of the disc selected from the group  
3   consisting of: a posterior medial, posterior lateral, anterior medial and anterior lateral region  
4   of the inner wall of the annulus fibrosus.

1           15.     The method of claim 13, wherein the electrode is positioned at a site of an  
2   annular fissure of the inner wall of the disc.

1           16.     The method of claim 13, wherein delivering energy includes delivering  
2     thermal energy or electromagnetic energy.

1           17.     The method of claim 13, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no vaporization occurs in the disc.

1           18.     The method of claim 13, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no material other than water is removed from the disc.

1           19.     The method of claim 13, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no destructive lesion is formed in the disc.

1           20.     A method comprising:  
2             providing a catheter having a radiofrequency electrode at a distal region of the  
3     catheter;  
4             positioning the electrode in the intervertebral disc;  
5             advancing the electrode non-linearly within the intervertebral disc beyond a central  
6     region of a nucleus pulposus of the disc to a selected location; and  
7             delivering energy to the selected location from the electrode positioned at the selected  
8     location.

1           21.     The method of claim 20, wherein the electrode is positioned adjacent an inner  
2     wall of the disc.

1           22.     The method of claim 20, wherein the electrode is advanced along a path with  
2     multiple degrees of curvature.

1           23.     The method of claim 20, wherein the electrode is advanced to an inner wall of  
2     the disc.

1           24.     The method of claim 20, wherein the selected location is selected from the  
2     group consisting of a posterior medial, posterior lateral, anterior medial, and anterior lateral  
3     region of an inner wall of an annulus fibrosus.

1           25.     The method of claim 20, wherein the selected location is at a site of an annular  
2     fissure of an inner wall of the disc.

1           26.     The method of claim 20, wherein delivering energy includes delivering  
2     thermal energy or electromagnetic energy.

1           27.     The method of claim 20, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no vaporization occurs in the disc.

1           28.     The method of claim 20, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no material other than water is removed from the disc.

1           29.     The method of claim 20, wherein delivering energy includes delivering a  
2     controlled amount of energy such that no destructive lesion is formed in the disc.

1           30.     The method of claim 20 wherein advancing the electrode non-linearly within  
2     the intervertebral disc comprises conforming the catheter sufficiently to an inner wall of an  
3     annulus fibrosus to contact multiple locations on the inner wall.

1           31.     A method for delivering a controlled amount of energy adjacent an inner wall  
2     of an intervertebral disc comprising:

3             introducing an intervertebral disc apparatus within an intervertebral disc such that a  
4     functional element incorporated into the apparatus adjacent a distal end of apparatus is  
5     positioned adjacent a wall of the intervertebral disc; and

6             delivering energy from the functional element to the wall of the intervertebral disc such  
7     that no vaporization of intervertebral disc tissue occurs when energy is delivered.

1           32.     A method for delivering a controlled amount of energy adjacent an inner wall  
2 of an intervertebral disc comprising:

3           introducing an intervertebral disc apparatus within an intervertebral disc such that a  
4 functional element incorporated into the apparatus adjacent a distal end of apparatus is  
5 positioned adjacent a wall of the intervertebral disc; and

6           delivering energy from the functional element to the wall of the intervertebral disc such  
7 that no material other than water is removed at or near the wall of the intervertebral when  
8 energy is delivered.

1           33.     A method for delivering a controlled amount of energy adjacent an inner wall  
2 of an intervertebral disc comprising:

3           introducing an intervertebral disc apparatus within an intervertebral disc such that a  
4 functional element incorporated into the apparatus adjacent a distal end of apparatus is  
5 positioned adjacent a wall of the intervertebral disc; and

6           delivering energy from the functional element to the wall of the intervertebral disc such  
7 that no destructive lesion is formed on a disc at or near the wall of the intervertebral disc  
8 when energy is delivered.